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Risk factors of breast cancer in Iranian female population

Medical Science

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ABSTRACT

Breast is an important organ in every women life. This organ undergoes several physical & physiological changes throughout the life of female population. Like any other organ of the human body, this organ may encounter different pathological conditions. Breast cancer is an important pathological condition that reduces the life quality of patients. The research in this area may play a relative protective role in female population. The aim of present work is to have a research on risk factors of breast cancer in Iranian women population.

1500 female subjects with positive breast cancer diagnosis were selected as a case group. 1500 healthy female subject with no breast disorders were selected randomly as a control group. Data on risk factors on breast cancer were collected by self design questionnaires. SPSS program was used to compare the results obtained in two groups.

The result showed that the factors such as lack of pregnancy, null parity, early menarche age, late menopausal age, obesity are among the risk factors to increase the incidence of breast cancer where as the regular daily exercise, parity increase, breast feeding are the factors that decrease the risk of breast cancer in Iranian female population which will be discussed in detail in full paper.

Introduction

Breast cancer is one of the leading causes of mortality among women [1]. One in eight women has risk to developing breast cancer in long life (12.2 %) and one out of each 28 is in risk of death by this disease [2]. A set of common epidemiological risk factors have been associated with the risk of breast cancer despite of its molecular sub- classifications [3]. Understanding of the factors that increase or decrease the breast cancer risk allows family physicians to counsel women appropriately [4].

Marital status of a women by it self is not an important factor in order to enhance or protect the women population from breast cancer involvement. In fact it is the sexual activity that is taken into consideration in this regard. This activity is usually performed in both married & unmarried women population & it has not effective role in breast cancer involvement [5].

Parity plays an important role in protecting the women population against breast cancer involvement. Lee et al have reported the multi parity as a factor to reduce breast cancer risk. In fact the pregnancy is accompanied by increase in progesterone secretion. It is already reported that progesterone is a protective agent against breast cancer risk [6-7].

Among the immunological factors which inhibit the risk of breast cancer is breast feeding. It is reported that increasing breast feeding is a good protective factor against breast cancer in women population [6].

There are number of references available regarding the use of non steroid anti- inflammatory drugs (NSAIDs) & breast cancer involvement. Takkouche et al have perform a research on use of aspirin & ibuprofen & its effect on breast cancer in a group of female subjects & they finally came to conclusion that these drugs normally reduce the risk of breast cancer in female population [1].

Physical activity & exercise are preventative and rehabilitative measures that can be employed at various points along the breast cancer trajectory. Reigle et al research in this regard supports the beneficial role of physical activity and exercise in reducing the risk for developing breast cancer [5,8].

One of the interesting points to be discussed is the controversies regarding the role of many risk factor assessed for breast cancer worldwide. One of the controversies is regarding the menstrual cycle. Despite the number of references which supports the irregular menstrual cycle as a risk factor, Gomes et al reported irregular menstrual cycle as a protective factor [9].

Age at menarche is an important risk factor for breast cancer in women population. A group of black and white girls were selected randomly. It was observed that more black girls were menarche before 12 years of age compared to their white counterparts. The result of the research showed that white girls were at lower risk of breast cancer compare to their black counterparts [4, 10-11].

Like age at menarche, age at menopause is also a factor to be taken into consideration in breast cancer studies. Late age at menopause or in other word women older than 50 years are likely to suffer from breast cancer [12].

Hormone replacement therapy [HRT] & it's relation with breast cancer is among the factors that there exist number of controversies in this regard. There are large numbers of reports in support of HRT in post menopausal women population or in other word they believe that HRT is not a carcinogenious agent. Other references mention that HRT slightly increases the risk of breast cancer in female subjects. There are few references which elaborate the HRT as a risk factor for breast cancer incidence in women population [7, 13-14].

Oral contraceptive pills (OCPs) is among the factors that there are quite a high controversies regarding its benefits or harm in women population. Despite OCPs general use for more than 30 years there is ongoing controversy within the medical community and the lay press about the safety of OCPs. Cervical cancer and breast cancer continue to dominate as controversial issues. Presently, many experts agree that OCPs may accelerate the growth of early breast cancer in certain subgroups of younger women, e.g. with initiation at an early age, before the first pregnancy, when used long term. In other hand there are reference which supports the advantages of OCPs in women population, of course more research is necessary to a safe & certain conclusion in this regard [7,15].

Breast cancer risk is associated with dietary intake i.e. the consumption of pig lard and fatty red meat was found to be associated with an increase in the risk of breast cancer. In other hand the ingestion of apples, watermelons, tomatoes, plain cakes and desserts afforded some degree of protection against the development of the disease [16-18].

Smoking is among the breast risk factor in women population. Sadri et al worked on the effect of this factor & they came to conclusion that both passive and active smoking equally increases the risk of female breast cancer [19-20].

Women with a family history of breast cancer are at increased risk of disease, but no study has been large enough to characterise reliably this factor. This risk is influenced by particular familial pattern of breast cancer [12, 21]. A family history of early onset breast cancer occurred more frequently among young breast cancer probands than among older breast cancer probands [22].

Examination of adipose tissue biology may provide important insight into mechanistic links for the observed association between higher body fat and risk of several types of cancer, in particular colorectal and breast cancer [23]. It is reported that weight gain with the population attributable- risk factor of 21.3 % contributes the most to the incidence of invasive post menopausal breast cancer [2-3].

Materials and Methods

The Present work is a cohort study deals with risk factors of breast cancer in Iranian female population. The total population of 3000 women were selected for the purpose of present study. They were classified in two groups. A group of 1500 female subjects with breast cancer as a case group & the same number of healthy female subjects with normal breast condition selected as control group. The whole population were in approximately same age group and the age range of the population was 37-65 years. The research was taken place during 2009 & 2010 years. A self designed questionnaire was designed for the purpose of present study. The number of questions was 30 & apart from general questions, several specified questions in connection with breast cancer risk factors were placed in the questions. Several specified questions in connection with breast cancer risk factors were placed in the questionnaire. Some of the information in this regards were, patient's life style, past medical history, smoking behaviour, patient dietary habits, family history of cancer, age at menarche, age at menopause, marital status, menstrual cycle, age of first pregnancy, parity. The information was collected from each subject. The result of present study was analyzed using SPSS statistical software.

Results

The result of present work is elaborated in table 1 which is the measure of population (%) in different groups for different factors.

Table 1(A,B): Risk factors, Marital status and number of parity in case and control groups.

Factor / group	A. Marital status		B. Number of Parity			
	Married	Single	Nulli	1-2	3-4	≥5
Control	82.7	17.3	14	23.3	30.7	32
Case	86.7	13.3	34	26	22.7	17.3
P-Value	0.336		0.001			

Table 1(C): Risk factors, Breast feeding in case and control groups.

Factor / group	C. Breast feeding (year)		
	NO	<1	1-2
Control	21.3	10	20.7
Case	34	26	21.3
P-Value	0.001		

Table 1(D): Risk factors, Type of NSAIDs in case and control groups.

Factor / group	D. Type of NSAIDs					
	2-5	NO	Acetaminophen	Ibuprofen	Diclofinac	Aspirin
Control	48	19.3	45.3	22.7	7.3	5.3
Case	18.7	28	46	24.7	9.3	7.3
P-Value	0.108					

Table 1(E,F): Risk factors, Exercise and Menstrual cycle in case and control groups.

Factor / group	E. Exercise (time in week)				F. Menstrual cycle	
	NO	Occasionally	3-4	>4	Regular	Irregular
Control	37.3	8.7	10	44	81.3	18.7
Case	52	13.3	10.7	24	84	16.0
P-Value	0.003				0.54	

Table 1(G,H): Risk factors, Age at menarche and age at menopause in case and control groups.

Factor / group	G. Age at menarche			H. Age at menopause		
	≤12	13-14	≥ 15	<45	45-49	50-54
Control	28	54.7	17.3	58.6	35.7	5.7
Case	32.7	60	73	35.9	39.7	24.4
P-Value	0.03			0.002		

Table 1(I): Risk factors, HRT in case and control groups.

Factor / group	I. HRT			
	NO	<1	1-5	>5
Control	70.7	16.7	12	0.7
Case	65.3	3.3	12.7	18.7
P-Value	0.001			

Table 1(J,K,L): Risk factors OCP, Diet (Vegetable & fruit) and smoking in case and control groups.

Factor / group	J. OCP			K. Diet, vegetable & fruit (time in week)		L. smoking	
	≤ 4	5-9	≥ 10	3-4	Daily	- ve	+ ve
Control	86	6.7	7.3	34.7	65.3	99.93	0.07
Case	48	20.7	31.3	40.7	59.3	-	-
P-Value	0.001			0.28		0.31	

Table 1(M,N): Risk factors, familial cancer history and BMI in case and control groups.

Factor / group	M. Familial cancer history (Degree)			N. BMI			
	NO	1	2	<20	20-24	25-29	30-34
Control	886	4.7	6.7	7.3	46.7	38.7	7.3
Case	55.3	36	8.7	1.3	42	47.3	9.3
P-Value	0.001			0.041			

Discussion

Breast cancer is a disaster that may ruin the whole life of women. Below are the factors that may enhance or protect breast cancer which will be discussed in detail as follow.

According to Table 1-A, there is not any relation between marital status & breast cancer. Other research in this connection came to the same result which supports the above statement [5].

Base on table 1-B, multi parity is a protective factor for breast cancer incidence. The reason is nothing but the secretion of progesterone during pregnancy which is a protective agent [6-7].

Table 1-C is a clue for breast feeding as a protective factor. The reason is the immunoglobulin content of breast milk which is a protective agent against breast cancer in female population [6].

The result of present study did not show any relation between use of NSAIDs & breast cancer incidence in Iranian female population (Table 1-D). It is to be stated that NSAIDs are taken as a protective drugs, where as we did not reach to this conclusion. The reason is that, these drugs are rarely used in female population & only in case of physician prescription they are used by the patients.

According to Table 1-E, there is a statistically significant relation between regular exercise & breast cancer incidence or in other word, regular exercise is a protective factor and it inhibit the risk of breast cancer. This fact is reported by number of research workers which once again supports the results of present study [5-8].

Menstrual cycle is a factor to be considered for the risk of breast cancer. Here in this study no difference was observed between control & case group (Table 1-F) as far as regular menstrual cycle is concerned it is a matter of controversy in this connection. The controversies are to such a extent that two research workers give regular menstrual cycle as a protective where as other

mention this factor as a one to enhance the breast cancer risk [9].

Table 1-G & H are the result of age at menarche & menopause. Lower age at menarche & higher age at menopause are two important risk factors for incidence of breast cancer in Iranian women population. These two factors are also reported by number of research worker in this area [11, 12].

HRT & OCPs are the two medications used in menopausal condition & as a pregnancy inhibitor respectively. In the present study these two medications are enhancing the breast cancer risk (Table 1-I & J). Again there are controversies in connection with the prescription of these two drugs [7, 13-15].

The result of present study does not indicate any relation between diet i.e. vegetables & fruits intakes & breast cancer incidence (Table 1-K), where as vegetables & fruits intake are protective & in other hand fatty red meat & pig lard diet normally increase the risk of breast cancer in female subjects [16-18]. The reason for this controversy lies in nature of food diet in Iran. In Iran meat is not frequently used, especially pig lard as it is used in western countries. Therefore this result is expectable in Iranian female population.

Smoking is a risk factor for breast cancer incidence [19-20], where as in the present study we could not reach to same conclusion.(Table 1-L). The reason is because of the social condition in Iran. In Iran smoking is not popular in female population.

Table 1-M shows the significant relation between women with a family history of breast cancer & risk of breast cancer in female population. Same result is reported in number of references which confirm the result of present study [12, 21-22].

Finally according to table 1-N, higher body fat or in other word obesity is a breast cancer risk factor. Same result is given by number of research worker in this area [2-3, 23], which once again supports the reliability of present study.

Conclusion

The conclusion of present work may be given as follows. No. of parity, Breast feeding, Exercise are protective factors where as age at menarche & menopause, HRT, OCP, familial cancer history & BMT are risk factor for breast cancer & Finally marital status, types of NSAIDs, menstrual cycle, diet, smoking have not effect in the incidence of breast cancer in Iranian female population.

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